

- (1) DEEP SWP SPECTRA OF "MARGINAL" BY DRA STARS
- (2) UV SPECTRA OF THE "SUPER-CYCLE" STAR: HD 10780

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A deep SWP spectrum (395 min) of the “marginal” BY Dra (mBY) star GL 256 shows no obvious C IV or other transition region line emission. This is at odds with other members of the class (GL 425a, GL 900) and raises the question whether GL 256 is a bonafide member of this group (which are believed to be intermediate in age/activity between dM and dMe stars). Analysis of optical high resolution spectra indicate the star is somewhat warmer than previously suspected (spectral type K5-7 V versus K8V) and the rotational velocity is relatively low ( $v \sin i < 4$  km/s) and the star is the least active at H alpha of all the mBY stars.

We suggest that the star is in fact NOT a “marginal” BY Dra star. There appear to be relatively few mBY stars, suggesting that they occupy a relatively brief period in M dwarf evolution when chromospheric densities are just sufficient to “fill in” H alpha without driving it into full emission (i.e., a dMe star). As such, mBY stars may offer a useful age discriminator unavailable for most M dwarfs.

Two sets of IUE observations of the “super dynamo cycle” star HD 10780 (so-called because of its extremely large Ca II magnetic cycle amplitude) were obtained in Sept. 1992 and Jan. 1993. Ca II measurements before Sept. 1993 suggested that the star should be entering a steep declining phase in its dynamo cycle. Contrary to these expectations, the Jan 1993 data showed the star to be considerably MORE active than in Sept. in both upper chromospheric and transition region lines. Simultaneous Mt. Wilson Ca II data just received also indicate a change in the expected behavior – the star appears to have confounded expectations and does not have a simple, quasi-sinusoidal dynamo cycle. Optical spectra show the star has a very low  $v \sin i$  ( $< 2$  km/s), consistent with its low average Ca II emission level.

